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(54) Title: **MODIFIED POLYETHYLENE, TEREPHTHALATE FOR LOW TEMPERATURE DYEABILITY, CONTROLLED SHRINKAGE CHARACTERISTICS AND IMPROVED TENSILE PROPERTIES**

(57) Abstract: The modified polyethylene terephthalate is a copolymer formed from terephthalic acid or its ester, ethylene glycol, a flexible long chain aliphatic dicarboxylic acid or its ester, and a hydroxy terminated polyether polyol or acyclic diol or aliphatic diol. The modified polyethylene terephthalate filament, staple fiber, yarn and resultant fabric is dyeable with a disperse dye without dye carrier at low temperature of about 100°C. The dyed filament, staple fiber, yarn and resultant fabric has a dye index greater than 100, and preferably at least about 120 to 600 with controlled shrinkage of 6 to 10%.